
Reference

RTS/INT-00157-2

Keywords

SIP, SIP-I, testing, TSS&TP

ETSI

650 Route des Lucioles
F-06921 Sophia Antipolis Cedex - FRANCE

Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - NAF 742 C
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Contents

Intellectual Property Rights	5
Foreword.....	5
Modal verbs terminology	5
1 Scope	6
2 References	6
2.1 Normative references	6
2.2 Informative references	6
3 Definition of terms, symbols and abbreviations.....	7
3.1 Terms	7
3.2 Symbols	7
3.3 Abbreviations.....	7
4 Test Suite Structure (TSS).....	7
5 Test Purposes (TP)	8
5.1 Introduction.....	8
5.1.1 TP naming convention	8
5.1.2 Test strategy	8
5.1.3 Test purpose structure	8
6 Test purposes (TP)	9
6.1 SIP NNI -SIP-I protocol interworking	9
6.1.1 Signalling Interworking of a Call from the IP Multimedia Subsystem towards the SIP-I based circuit-switched core network	9
6.1.1.1 Sending of INVITE (IAM)	9
6.1.1.2 Sending of UPDATE	35
6.1.1.3 Receipt of multiple INVITE request and in-dialog SIP INFO request	37
6.1.1.4 Sending of 18x provisional responses	38
6.1.1.5 Sending of the 200 OK (INVITE)	62
6.1.1.6 Sending of the Release message (REL)	74
6.1.1.7 Receipt of the Release Message	80
6.1.1.8 Void	92
6.1.1.9 Void	92
6.1.1.10 Void	92
6.1.2 Signalling Interworking of a Call from SIP-I based circuit-switched core network towards the IP Multimedia Subsystem.....	92
6.1.2.1 Sending of INVITE	92
6.1.2.2 Updating Precondition Information	110
6.1.2.3 Sending of ACM and awaiting answer indication	111
6.1.2.4 Sending of the Call Progress message (CPG).....	128
6.1.2.5 Sending of the Answer Message (ANM).....	140
6.1.2.6 Sending of the 200 OK (INVITE) with encapsulated Connect message (CON)	149
6.1.2.7 Receipt of Status Codes 3xx, 4xx, 5xx or 6xx	157
6.1.2.8 Receipt of a BYE.....	167
6.1.2.9 Receipt of the Release Message	171
6.1.2.10 Void	179
6.1.2.11 Autonomous Release at O-MGCF.....	179
6.2 Supplementary Services	181
6.2.1 Void.....	181
6.2.2 Connected line presentation and restriction (COLP/COLR)	181
6.2.3 Malicious call identification.....	187
6.2.4 Subaddressing (SUB)	188
6.2.5 Call Forwarding Busy (CFB)/ Call Forwarding No Reply (CFNR)/Call Forwarding Unconditional (CFU)	194
6.2.6 Explicit Call Transfer (ECT).....	197
6.2.7 Void.....	200

6.2.8	Call Hold	201
6.2.9	Call Completion on busy subscriber	214
6.2.10	Completion of Calls on No Reply (CCNR)	214
6.2.11	Terminal Portability (TP)	215
6.2.12	Conference calling (CONF)/Three-Party Service (3PTY)	216
6.2.13	Void.....	223
6.2.14	Multi-Level Precedence and Pre-emption (MLPP)	223
6.2.15	Global Virtual Network Service (GVNS)	225
6.2.16	Reverse charging (REV)	225
6.2.17	Void.....	227
6.2.18	Void.....	227
6.3	IMS Supplementary Services.....	228
6.3.1	Originating Identification Presentation (OIP) and Originating Identification Restriction (OIR)	228
6.3.2	Terminating Identification Presentation (TIP) and Terminating Identification Restriction (TIR)	253
6.3.3	Communication Diversion (CDIV)	259
6.3.4	Conference call (CONF)	302
6.3.5	Message Waiting Indication (MWI).....	314
6.3.6	Malicious Communication Identification (MCID).....	314
6.3.7	Closed User Group (CUG)	318
6.3.8	Call Completion Services	324
6.3.9	Communication Waiting (CW)	346
Annex A (informative): Bibliography.....		348
History		349

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Foreword

This Technical Specification (TS) has been produced by ETSI Technical Committee Core Network and Interoperability Testing (INT).

The present document is part 2 of a multi-part deliverable covering SIP NNI - SIP-I Interworking described in the clauses 7.2 and 7.3 of ETSI TS 129 235 [1] (Release 10), as identified below:

- Part 1: "Protocol Implementation Conformance Statement (PICS)";
- Part 2: "SIP-I/SIP NNI Test Suite Structure and Test Purposes (TSS&TP)".**

Modal verbs terminology

In the present document "**shall**", "**shall not**", "**should**", "**should not**", "**may**", "**need not**", "**will**", "**will not**", "**can**" and "**cannot**" are to be interpreted as described in clause 3.2 of the [ETSI Drafting Rules](#) (Verbal forms for the expression of provisions).

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1 Scope

The present document specifies the Test Suite Structure and Test Purposes for SIP - SIP-I Interworking described in the clauses 7.2 and 7.3 of ETSI TS 129 235 [1] (Release 10).

2 References

2.1 Normative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

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The following referenced documents are necessary for the application of the present document.

- [1] ETSI TS 129 235 (V10.1.0): "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); LTE; Interworking between SIP-I based circuit-switched core network and other networks (3GPP TS 29.235 version 10.1.0 Release 10)".
- [2] ETSI TS 129 163: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; Interworking between the IP Multimedia (IM) Core Network (CN) subsystem and Circuit Switched (CS) networks (3GPP TS 29.163 Release 8)".
- [3] ISO/IEC 9646-1: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 1: General concepts".
- [4] Recommendation ITU-T T.38: "Procedures for real-time Group 3 facsimile communication over IP networks".
- [5] Void.
- [6] ETSI TS 101 572-1: "Core Network and Interoperability Testing (INT); Conformance tests; (3GPP Release 10); Interworking between SIP-I based circuit-switched core network and other networks; Part 1: Protocol Implementation Conformance Statement (PICS)".
- [7] Recommendation ITU-T Q.735.1 (03/1993): "Stage 3 description for community of interest supplementary services using Signalling System No. 7 : Closed user group (CUG)".

2.2 Informative references

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The following referenced documents are not necessary for the application of the present document but they assist the user with regard to a particular subject area.

- [i.1] Recommendation ITU-T E.164: "The international public telecommunication numbering plan".
- [i.2] IETF RFC 5079: "Rejecting Anonymous Requests in the Session Initiation Protocol (SIP)".

- [i.3] Recommendation ITU-T Q.850: "Usage of cause and location in the Digital Subscriber Signalling System No. 1 and the Signalling System No. 7 ISDN user part".

3 Definition of terms, symbols and abbreviations

3.1 Terms

For the purposes of the present document, the terms given in ETSI TS 129 235 [1] and the following apply:

Implementation Under Test (IUT): Refer to ISO/IEC 9646-1 [3].

System Under Test (SUT): Refer to ISO/IEC 9646-1 [3].

Test Purpose (TP): Refer to ISO/IEC 9646-1 [3].

3.2 Symbols

For the purposes of the present document, the symbols given in ETSI TS 129 235 [1] apply.

3.3 Abbreviations

For the purposes of the present document, the abbreviations given in ETSI TS 129 235 [1] and the following apply:

ACM	Address Complete Message
IAM	Initial Address Message
IUT	Implementation Under Test
oBCI	optional Backward Call Indicator
REL	RELease message
SUT	System Under Test
TP	Test Purpose

4 Test Suite Structure (TSS)

The Test Suite Structure is in close alignment with ETSI TS 129 235 [1] and ETSI TS 129 163 [2].

SIP NNI -SIP-I			
	Basic call	Sending_of_INVITE (IAM)	TP_101_xxx
			TP_102_xxx
			TP_103_xxx
			TP_104_xxx
			TP_105_xxx
			TP_106_xxx
			TP_107_xxx

SIP-I -SIP NNI			
	Basic call	Sending_of_INVITE	TP_201_xxx
			TP_202_xxx
			TP_203_xxx
			TP_204_xxx
			TP_205_xxx
			TP_206_xxx
			TP_207_xxx
			TP_208_xxx
			TP_209_xxx
			TP_211_xxx

PSTN-SS		
PSTN-SS/COL		TP 302 xxx
PSTN-SS/MCID		TP 303 xxx
PSTN-SS/SUB		TP 304 xxx
PSTN-SS/CDIV		TP 305 xxx
PSTN-SS/ECT		TP 306 xxx
PSTN-SS/HOLD		TP 308 xxx
PSTN-SS/CCBS		TP 309 xxx
PSTN-SS/CCNR		TP 310 xxx
PSTN-SS/TP		TP 311 xxx
PSTN-SS/CONF		TP 312 xxx
PSTN-SS/MLPP		TP 314 xxx
PSTN-SS/GVNS		TP 315 xxx
PSTN-SS/REV		TP 316 xxx

IMS-SS		
IMS-SS/OIP-OIR		TP 401 xxx
IMS-SS/TIP-TIR		TP 402 xxx
IMS-SS/CDIV		TP 403 xxx
PSTN-SS/CONF		TP 404 xxx
IMS-SS/MCID		TP 406 xxx
IMS-SS/CUG		TP 407 xxx
IMS-SS/CC/		TP 408 xxx
IMS-SS/CW		TP 409 xxx

5 Test Purposes (TP)

5.1 Introduction

5.1.1 TP naming convention

For each requirement in ETSI TS 129 163 [2] a TP is defined.

TPs are numbered, starting at 001, within each group. Groups are organized according to the TSS. Additional references are added to identify the actual test suite and whether it applies to the network or the user (see table 5.1.1-1).

Table 5.1.1-1: TP identifier naming convention scheme

Identifier: TP_<group>_<nnn>	
<group> = group	3 digit field representing group reference according to TSS
<nnn> = TP number	3 digit sequential number (001 to 999)

5.1.2 Test strategy

As the base standard ETSI TS 129 235 [1] and ETSI TS 129 163 [2] contains no explicit requirements for testing, the TPs were generated as a result of an analysis of the base standard and the PICS specification ETSI TS 101 572-1 [6]. The criteria applied include the following:

- whether or not a test case can be built from the TP is not considered.

5.1.3 Test purpose structure

The test purpose structure is according to the Test Suite Structure (TSS). The Reference column in each Test Purpose refers to the basic specification except stated explicitly.

6 Test purposes (TP)

6.1 SIP NNI -SIP-I protocol interworking

6.1.1 Signalling Interworking of a Call from the IP Multimedia Subsystem towards the SIP-I based circuit-switched core network

6.1.1.1 Sending of INVITE (IAM)

TP number	TP_101_001	Reference	[1], clause 7.2.1 [2], clause 7.2.3.1.1																				
TSS reference	SIP NNI - SIP-I/Basic call/Sending_of_SIP-INVITE request/																						
Selection criteria																							
Test Purpose name	Sending of SIP-INVITE request																						
Test Purpose	Ensure that on reception of a SIP-INVITE requesting a session, the I-MGCF sends a SIP-INVITE request with encapsulated IAM message																						
ISUP Parameter values																							
SIP Parameter values																							
Comments																							
Message flows	<table style="width: 100%; border: none;"> <tr> <td style="text-align: center;">SIP NNI</td> <td style="text-align: center;">→</td> <td style="text-align: center;">MGCF</td> <td style="text-align: center;">→</td> <td style="text-align: center;">SIP-I</td> </tr> <tr> <td>INVITE</td> <td></td> <td></td> <td></td> <td>INVITE (IAM)</td> </tr> <tr> <td>100 Trying</td> <td style="text-align: center;">←</td> <td></td> <td style="text-align: center;">←</td> <td>100 Trying</td> </tr> <tr> <td colspan="5" style="text-align: center;">Apply post test routine</td> </tr> </table>			SIP NNI	→	MGCF	→	SIP-I	INVITE				INVITE (IAM)	100 Trying	←		←	100 Trying	Apply post test routine				
SIP NNI	→	MGCF	→	SIP-I																			
INVITE				INVITE (IAM)																			
100 Trying	←		←	100 Trying																			
Apply post test routine																							

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TP number	TP_101_002	Reference	[1], clause 7.2.4 [2], clause 7.2.3.1.1
TSS reference	SIP NNI - SIP-I/Basic call/Sending of SIP-INVITE request/		
Selection criteria	PICS 6.1.1/1 AND PICS 6.2.1/1 AND PICS 6.2.1/2		
Test Purpose name	Preconditions support indicated in the Supported header		
Test Purpose	Ensure that the Preconditions procedure is successful if the support of Precondition is indicated in the Supported header. The INVITE with encapsulated IAM is immediately sent. The Nature of connection indicator is set to 'continuity check performed on a previous circuit' or 'continuity check required'. After the UPDATE was received, a UPDATE is sent		
ISUP Parameter values	IAM: Nature of connection indicator = 'continuity check performed on a previous circuit' or 'continuity check required'		
SIP Parameter values	INVITE: Supported: precondition, 100rel SDP a=curr:qos local none a=curr:qos remote none a=des:qos mandatory local sendrcv a=des:qos none remote sendrcv 183: Require: 100rel SDP a=curr:qos local none a=curr:qos remote none a=des:qos mandatory local sendrcv a=des:qos mandatory remote sendrcv a=conf:qos remote sendrcv UPDATE: SDP a=curr:qos local sendrcv a=curr:qos remote none a=des:qos mandatory local sendrcv a=des:qos mandatory remote sendrcv 200 OK UPDATE SDP a=curr:qos local sendrcv a=curr:qos remote sendrcv a=des:qos mandatory local sendrcv a=des:qos mandatory remote sendrcv		
Comments			
Message flows	SIP NNI INVITE → 100 Trying ← 183 Session Progress ← PRACK → 200 OK (PRACK) ← UPDATE → 200 OK (UPDATE) ←	MGCF → ← → ← → ←	SIP-I INVITE (IAM) 100 Trying 183 Session Progress PRACK 200 OK (PRACK) UPDATE 200 OK (UPDATE)
	Apply post test routine		

TP number	TP_101_003	Reference	[1], clause 7.2.4 [2], clause 7.2.3.1.1
TSS reference	SIP NNI - SIP-I/Basic call/Sending of SIP-INVITE request/		
Selection criteria	PICS 6.1.1/1 AND PICS 6.2.1/1 AND NOT PICS 6.2.1/2		
Test Purpose name	Preconditions support indicated in the Supported header		
Test Purpose	Ensure that the Preconditions procedure is successful if the support of Precondition is indicated in the Supported header. The INVITE with encapsulated IAM is sent after the UPDATE was received. The Nature of connection indicator is set to 'continuity check is not required'		
ISUP Parameter values	IAM: Nature of connection indicator = 'continuity check is not required'		
SIP Parameter values	INVITE: Supported: precondition, 100rel SDP a=curr:qos local none a=curr:qos remote none a=des:qos mandatory local sendrcv a=des:qos none remote sendrcv 183: Require: 100rel SDP a=curr:qos local none a=curr:qos remote none a=des:qos mandatory local sendrcv a=des:qos mandatory remote sendrcv a=conf:qos remote sendrcv UPDATE: SDP a=curr:qos local sendrcv a=curr:qos remote none a=des:qos mandatory local sendrcv a=des:qos mandatory remote sendrcv 200 OK UPDATE SDP a=curr:qos local sendrcv a=curr:qos remote sendrcv a=des:qos mandatory local sendrcv a=des:qos mandatory remote sendrcv		
Comments			
Message flows	SIP NNI INVITE → 100 Trying ← 183 Session Progress ← PRACK → 200 OK (PRACK) ← UPDATE → 200 OK (UPDATE) ←	MGCF 	SIP-I → INVITE (IAM)
	Apply post test routine		

TP number	TP_101_006	Reference	[1], clause 7.2.4 [2], clause 73.3.1.1
TSS reference	SIP NNI - SIP-I/Basic call/Sending of SIP-INVITE request/		
Selection criteria	PICS 6.1.1/2 AND PICS 6.2.1/1 AND PICS 6.2.1/2; BICC support		
Test Purpose name	Preconditions support indicated in the Supported header COT procedure supported		
Test Purpose	Ensure that the Preconditions procedure is successful if the support of Precondition is indicated in the Supported header. The internal ISUP Continuity check procedure is not supported. The INVITE with encapsulated IAM is immediately sent. The Nature of connection indicator is set to 'COT to be expected'. After the UPDATE was received, an UPDATE is sent		
ISUP Parameter values	IAM: Nature of connection indicator = 'COT to be expected'		
SIP Parameter values	INVITE: Supported: precondition, 100rel SDP a=curr:qos local none a=curr:qos remote none a=des:qos mandatory local sendrcv a=des:qos none remote sendrcv 183: Require: 100rel SDP a=curr:qos local none a=curr:qos remote none a=des:qos mandatory local sendrcv a=des:qos mandatory remote sendrcv a=conf:qos remote sendrcv UPDATE: SDP a=curr:qos local sendrcv a=curr:qos remote none a=des:qos mandatory local sendrcv a=des:qos mandatory remote sendrcv 200 OK UPDATE SDP a=curr:qos local sendrcv a=curr:qos remote sendrcv a=des:qos mandatory local sendrcv a=des:qos mandatory remote sendrcv		
Comments			
Message flows	SIP NNI INVITE → 100 Trying ← 183 Session Progress ← PRACK → 200 OK (PRACK) ← UPDATE → 200 OK (UPDATE) ←	MGCF → ← ← → → → ←	SIP-I INVITE (IAM) 100 Trying 183 Session Progress PRACK 200 OK (PRACK) UPDATE 200 OK (UPDATE)
	Apply post test routine		

TP number	TP_101_007	Reference	[1], clause 7.2.4 [2], clause 7.3.3.1.1
TSS reference	SIP NNI - SIP-I/Basic call/Sending of SIP-INVITE request/		
Selection criteria	PICS 6.1.1/2 AND PICS 6.2.1/1 AND NOT PICS 6.2.1/2		
Test Purpose name	Preconditions support indicated in the Supported header		
Test Purpose	Ensure that the Preconditions procedure is successful if the support of Precondition is indicated in the Supported header. The INVITE with encapsulated IAM) is sent after the UPDATE was received. The Nature of connection indicator is set to 'no COT to be expected'		
ISUP Parameter values	IAM: Nature of connection indicator = 'no COT to be expected'		
SIP Parameter values	INVITE: Supported: precondition, 100rel SDP a=curr:qos local none a=curr:qos remote none a=des:qos mandatory local sendrcv a=des:qos none remote sendrcv 183: Require: 100rel SDP a=curr:qos local none a=curr:qos remote none a=des:qos mandatory local sendrcv a=des:qos mandatory remote sendrcv a=conf:qos remote sendrcv UPDATE: SDP a=curr:qos local sendrcv a=curr:qos remote none a=des:qos mandatory local sendrcv a=des:qos mandatory remote sendrcv 200 OK UPDATE SDP a=curr:qos local sendrcv a=curr:qos remote sendrcv a=des:qos mandatory local sendrcv a=des:qos mandatory remote sendrcv		
Comments			
Message flows	SIP NNI INVITE → 100 Trying ← 183 Session Progress ← PRACK → 200 OK (PRACK) ← UPDATE → 200 OK (UPDATE) ←	MGCF 	SIP-I → INVITE (IAM)
	Apply post test routine		